minimal lumen diameter (MLD) and CSA are shown in the table.

In conclusion: 1) high-pressure dilatation inside the stent is able to optimize stent expansion in 2/3 of cases; 2) in the remaining 1/3 of lesions, however, further ICUS driven interventions induces a large improvement in final lumen dimension and symmetry (in 45% of lesions a >20% CSA gain was achieved between initial and final ICUS examination; 3) the clinical value of these changes for prevention of subacute thrombosis and restenosis remains to be tested in prospective randomized trials.

11:00

707-3 Intravascular Ultrasound Prediction of Stent Thrombosis: Insights from the POST Registry

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Stent thrombosis (ST) is a rare but dangerous complication. To investigate whether intravascular ultrasound (IVUS) provides additional information in predicting ST, a retrospective multicenter registry (Predictors and Outcomes of Stent Thrombosis) was designed to enroll patients with ST following stent deployment under IVUS guidance. 22 patients have been fully analyzed to date (16 males, mean age 63 ± 8). Vessel distribution included 10 LAD, 5 RCA, 5 CFX, 2 vein grafts. Clinical presentations were unstable angina (45%), post-MI angina (14%), and stable angina (41%). The majority underwent balloon predilatation (82%) with 18% also undergoing atherectomy. Indications for stenting were elective (68%), suboptimal result (23%) and bailout (9%). There were 1.7 ± 1.1 stents/artery with 95% undergoing high-pressure dilatation. Mean % expansion (minimum stent area ÷ average proximal + distal reference area) was 81.2 ± 15.1%. IVUS and angio findings were:

IVUS	%	Angiography	%
Malapposition	64	Residual stenosis > 0%	28
Underexpansion*	53	Outflow disease	22
Plaque protrusion	27	Filling defect	11
Thrombus	23	Inflow disease	6
Edge tears	23	Dissection	0

* = <80% of a average proximal + distal reference area

Overall, 95% of cases demonstrated one or more abnormal IVUS findings. Angiography revealed an abnormality in 39% of cases ($p < 0.05$ vs. IVUS). Myocardial infarction was documented in 91% of cases with subsequent death in one patient enrolled. *Conclusion:* IVUS-detected abnormalities were seen in almost all patients with subsequent ST; a majority of these cases had acceptable angiographic results.

11:00

707-4 Angiography Versus Intravascular Ultrasound-Directed Stent Placement

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A.V.I.D. (Angiography Versus Intravascular ultrasound-Directed stent placement) is a multicenter randomized study designed to assess the effect of intravascular ultrasound (IVUS) on patient outcome after elective coronary stent placement. After an optimal angiographic result (<10% residual stenosis) is obtained, pts are randomized to angiography or IVUS-directed therapy. In the angiography arm, blinded IVUS is performed and the pt discharged on reduced anticoagulation. In the IVUS-directed arm, criteria for optimal stent placement (<10% stenosis, full apposition, lack of dissection) are applied. *Results:* To date 280 pts have been randomized. In the IVUS group 29.2% (37/127) required further therapy to fulfill IVUS criteria: 4 (3.1%) for non-apposition, 9 (7.1%) for dissection, and 24 (19.0%) for an underdilated stent (with an increase of 0.32 ± 0.31 mm in diameter and 24.2 ± 20% increase in cross-sectional area). In the angiography group, IVUS results were unblinded and an additional stent placed for dissection in 1.96% (3/153) pts. No pt experienced a complication as a result of IVUS-directed therapy. At 30-day follow-up 2 pts (1.3%) in the angiography group and 2 pts (1.6%) in the IVUS group experienced acute in-hospital stent thrombosis (p = ns). The incidence of MI, CABG or death was 3.3% (4/123) in the angiography group and 6.0% (7/117) in the IVUS group (p = ns). No pt experienced in-stent restenosis within 30 days. At 6-month follow-up, the rate of target lesion revascularization (TLR) for all pts was 7.1% (12/170). *Conclusion:* To date, IVUS-directed stent implantation has improved acute stent dimensions but has not influenced the 30-day clinical event rate; at 6 months the rate of TLR is low for the all pts; a comparison of TLR for each group at 6 and 12 months is pending.

11:30

707-5 Transcatheter Iridium-192 Irradiation Reduces In-Stent Neointimal Tissue Proliferation: A Serial *Volumetric* Intravascular Ultrasound Analysis from the SCRIPPS Trial

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The SCRIPPS (Scripps Coronary Radiation to Inhibit Proliferation Post-Stenting) Trial is a *randomized, double-blind* trial coupling stent implantation and ionizing radiation to treat both remodeling and proliferative components of restenosis. 55 pts with restenotic lesions received either transcatheter iridium-192 or placebo. Complete (acute & follow-up @ 7.6 ± 2.3 mos) intravascular ultrasound (IVUS) data is available in 37 pts: automated transducer pullback @ 0.5 mm/s; measurement of stent & lumen areas at 1 mm axial increments; calculation of stent, lumen, plaque (stent-lumen), & intimal hyperplasia (Δplaque) volumes (vol, mm^3) using Simpson's rule.

	Iridium-192	Placebo	p
Stent length (mm)	22 ± 7	22 ± 8	0.9619
Acute stent vol	219 ± 87	234 ± 118	0.6550
Acute lumen vol	196 ± 79	211 ± 107	0.6202
Acute plaque vol	23 ± 34	26 ± 58	0.8732
Follow-up stent vol	219 ± 87	236 ± 121	0.6293
Follow-up lumen vol	180 ± 67	167 ± 95	0.6396
Follow-up plaque vol	40 ± 35	71 ± 69	0.0882
Δ Minimum lumen area	*0.9 ± 1.4 mm^2*	*2.8 ± 2.1 mm^2*	*0.0033*
Intimal hyperplasia vol	*16 ± 22*	*45 ± 39*	*0.0088*

We conclude: Serial *volumetric* IVUS analysis shows that transcatheter iridium-192 irradiation reduced in-stent neointimal hyperplasia *by 65%* resulting in significantly less late lumen loss with no evidence of radiation induced stent recoil (Δ stent volume).

11:45

707-6 The Predictive Value of Different Intravascular Ultrasound Criteria for Restenosis After Coronary Stenting

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We studied 682 consecutive pts (921 lesions) who had successful IVUS guided stenting. Palmaz-Schatz stent was used in 65% of cases. Angiographic reference diameter was 3.19 ± 0.55 mm. IVUS criteria studied were: minimum lumen cross sectional area (MLCSA) ≥9 mm^2; MLCSA ≥ 90% of average reference lumen CSA (AvgCSA); MLCSA ≥ 80% of AvgCSA; MLCSA ≥ 70% of final balloon CSA (BCSA) and MLCSA ≥ 90% of distal reference lumen CSA (DCSA). Different criteria were met in 23%, 60%, 79%, 63% and 79% of cases, respectively. Angiographic FU was 75% at 5.0 ± 1.8 month. Fig. 1 shows restenosis by each criteria and Fig. 2 shows restenosis according to post-procedure MLCSA.

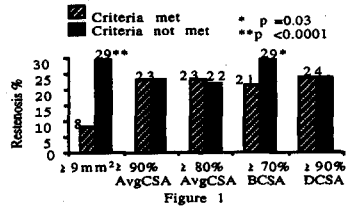

Figure 1

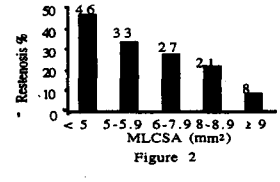

Figure 2

Conclusions: The incidence of restenosis has an inverse relation to post-procedure absolute IVUS lumen CSA, while criteria based on the ratio of stent lumen to distal reference lumen or to average reference lumen might not have a predictive value.

MONDAY ORAL